

REMARKS

Applicants appreciate the detailed examination evidenced by the Official Action mailed August 9, 2006 (hereinafter "the Official Action"). Applicants also appreciate the allowance of Claims 19 and 20 and the indication that Claims 2-5 include patentable subject matter. *Official Action; page 4.*

However, Applicants respectfully maintain that rejected Claims 1 and 6-18 are patentable over the cited references as written. For example, Teo does not disclose or suggest "forming a conductive layer on the portion of the barrier layer inside the intaglio pattern and on the upper surface wherein the conductive layer comes in contact with the barrier layer and the upper surface," as recited in Claim 1. Accordingly, Claims 1 and 6-18 are patentable for at least the reasons described herein.

Independent Claim 1 is patentable over Teo

Claims 1, 6, 11-13, and 16-17 stand rejected under 35 U.S.C. § 102 over U.S. Patent No. 5,970,374 to ("Teo"). *Official Action page; 2.* Applicants respectfully traverse the rejection based on Teo as Teo does not disclose, for example:

- forming an intaglio pattern in a mold layer;
- forming a barrier layer on an upper surface of the mold layer and in the intaglio pattern;
- forming a flowable material on the barrier layer;
- removing a portion of the flowable material and a portion of the barrier layer outside the intaglio pattern to expose an upper surface of an oxide layer included in the mold layer and avoiding removing a portion of the flowable material and a portion of the barrier layer inside the intaglio pattern;
- removing the portion of the flowable material from inside the intaglio pattern;
- forming a conductive layer on the portion of the barrier layer inside the intaglio pattern and on the upper surface wherein the conductive layer comes in contact with the barrier layer and the upper surface;** and
- removing the conductive layer from the upper surface.

Applicants traverse the rejection as anticipation under § 102 requires that each and every element of the claim is found in a single prior art reference. *W. L. Gore & Associates Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1554, 220 U.S.P.Q. 303, 313 (Fed.

Cir. 1983). Stated another way, all material elements of a claim must be found in one prior art source. *In re Marshall*, 198 U.S.P.Q. 344 (C.C.P.A 1978). "Anticipation under 35 U.S.C. § 102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention." *Apple Computer Inc. v. Articulate Systems Inc.* 57 USPQ2d 1057, 1061 (Fed. Cir. 2000). A finding of anticipation further requires that there must be no difference between the claimed invention and the disclosure of the cited reference as viewed by one of ordinary skill in the art. *See Scripps Clinic & Research Foundation v. Genentech Inc.*, 927 F.2d 1565, 1576, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991). Additionally, the cited prior art reference must be enabling, thereby placing the allegedly disclosed matter in the possession of the public. *In re Brown*, 329 F.2d 1006, 1011, 141 U.S.P.Q. 245, 249 (C.C.P.A. 1964). Thus, the prior art reference must adequately describe the claimed invention so that a person of ordinary skill in the art could make and use the invention, which Teo does not.

Figures 3D-3E clearly show that a Ti/TiN barrier layer 30 is formed in the recess and on an upper surface of layer 14 prior to the formation of tungsten layer 40. Accordingly, Teo does not disclose, at least:

removing a portion of the flowable material and a portion of the barrier layer outside the intaglio pattern to expose an upper surface of an oxide layer included in the mold layer and avoiding removing a portion of the flowable material and a portion of the barrier layer inside the intaglio pattern;

forming a conductive layer... wherein the conductive layer comes in contact with the barrier layer and the upper surface

As indicated by the above-highlighted recitations of independent Claim 1, Teo does not disclose forming a conductive layer that comes in contact with the upper surface (where the upper surface is an exposed upper surface of an oxide layer). To the contrary, Figures 3D-3E of Teo show that the tungsten layer 40 is formed to be in contact with the Ti/TiN barrier layer 30 both inside and outside the recess. Accordingly, the tungsten layer 40 in Teo does not come in contact with an upper surface (of an oxide layer) as the Ti/TiN barrier layer 30 separates the tungsten layer 40 from the insulating layer 14.

Applicants further note that the presently cited Teo reference was overcome in Applicant's previous response by citation to recitations included in independent Claim 19 that are similar the recitations of independent Claim 1. In particular, Applicants' response to the Official Action mailed September 8, 2005 addressed the rejections of Claims 19 and 20 (in-part) over Teo as follows:

In reference to Teo, as shown in Figures 3B-3E therein, the Tungsten layer 40 comes into contact with the Ti/TiN layer 30, which as understood by Applicants is not a mold layer as claimed.
Applicants' response of December 8, 2005 page 10.

In response to Applicants' above arguments, the subsequent Official Action shifted the rejection of Claim 19 to a combination of Anma, Ebertseder, and Ho. *See The Official Action mailed February 27, 2006, page 3.* Accordingly, Applicants respectfully submit that prosecution history of the present application indicates that the cited recitations included in independent Claim 1 have already been indicated as not disclosed/suggested by Teo. Therefore, independent Claim 1 is patentable over Teo for at least the reasons described above. Furthermore, dependent Claims 6-18 are also patentable over Teo for at least the reasons described above with reference to independent Claim 1.

CONCLUSION

Applicants have shown that Teo does not disclose all the recitations of the claims as required under section 102. Applicants respectfully request the withdrawal of all rejections and the allowance of all the claims in due course. If any informal matters arise, the Examiner is encouraged to contact the undersigned by telephone at (919) 854-1400.

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In re: Jong-myeong Lee et al.
Serial No.: 10/813,330
Filed: March 30, 2004
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